

***DEDICATION***

To the soul of my dear  
mother,  
,To my dear father  
,To my dear wife  
To my sons and my extended  
,family

## **Acknowledgements**

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## Abstract

The main aim of this study was to determine the seroprevalence and the possible risk factors and profounders for hepatitis B and C virus infections among the blood donors attending Khartoum North Teaching Hospital, Khartoum, Sudan. Hundred (100) subjects were investigated during the period from January to March, 2009. All the subjects examined were males, age ranging from 20-52 years. The hepatitis B surface antigen (HBs Ag), the main serologic marker for hepatitis B virus (HBV) infection was detected among 7.0% blood donors using both immunochromatographic test (ICT) and the enzyme-linked immunosorbent assay (ELISA). Hepatitis C virus (HCV) specific antibodies (anti-HCV Abs) were detected among 1.0% blood donors using the same techniques mentioned above. There was no significant difference ( $p>0.05$ ) between the prevalence of HBs Ag or HCV Abs among married blood donors compared to the single donors. Subjects of younger ages 20-30 years were found to be significantly ( $p<0.05$ ) infected with both HBV (4) cases and HCV (1) case compared to all other age groups examined. In all subjects examined, dual infection with both viruses was never detected. Both techniques were, equally, sensitive in detection of both serological markers. Previous jaundice was found to be a significant ( $p<0.05$ ) profounder factor to both viral infections. However, no other risk factors (e.g. previous blood transfusions, needle stick injuries, alcohol intake and previous surgical operations) were found to be significant ( $p>0.05$ ) to contract both diseases.

## ملخص البحث

هدفت هذه الدراسة بصورة أساسية الى تحديد مدى إنتشار الإصابة بالتهاب الكبد الفيروسي "ب" و"ج" وتحديد عوامل الخطر المحتملة الممهدة للإصابة بهما وسط المتبرعين بالدم بمستشفى الخرطوم بحرى التعليمى ، الخرطوم - السودان.

شملت الدراسة 100 متبرعاً بالدم خلال الفترة من يناير حتى مارس 2009. كل المتبرعين الذين تم فحصهم من الذكور ، تتراوح أعمارهم بين 20 - 52 سنة . كانت نتيجة المستضد السطحي لفيروس الكبد "ب" و الذى يعتبر المؤشر الرئيس للإصابة بالتهاب الكبد الفيروسي "ب" إيجابية فى 7% من المتبرعين بالدم بإستخدام كل من تقنيتى الكروماتوغرافى والإليزا . أما الأجسام المضادة لفيروس الكبد "ج" فكانت إيجابية فى 1% من المتبرعين بإستخدام نفس التقنيات أعلاه . لم تظهر الدراسة أى فروقات ذات دلالة إحصائية ( $p > 0.05$ ) بين إنتشار المستضد السطحي لفيروس الكبد "ب" والأجسام المضادة لفيروس الكبد "ج" وسط المتزوجين المتبرعين بالدم مقارنةً بغير المتزوجين من المتبرعين . أوضحت الدراسة أن المتبرعين الشباب الذين تتراوح أعمارهم بين 20 - 30 سنة أكثر عرضة للإصابة ( $p < 0.05$ ) بكل من إلتهاب الكبد الفيروسي "ب" (4) حالات وإلتهاب الكبد الفيروسي "ج" (1) حالة مقارنة بالفئات العمرية الأخرى ، بينما لم تبين الدراسة أى إصابة مشتركة بكلا الفيروسين معاً فى جميع المتبرعين بالدم الذين تم فحصهم . كانت التقنيتين المستخدمتين على السواء حساستين تجاه الكشف عن المؤشرات المصلية للفيروسين . خلصت الدراسة إلى أن التعرض السابق لليرقان كان العامل الوحيد الممهد ذو الدلالة الإحصائية ( $p < 0.05$ ) الذى يسبق الإصابة بكلا الفيروسين . بينما لم تظهر الدراسة أى تأثيرات ذات دلالة إحصائية ( $p > 0.05$ ) لعوامل الخطر الأخرى (التاريخ السابق لنقل الدم ، وحوادث الطعن بالإبر الملوثة، إدمان الكحول، والعمليات الجراحية السابقة ( للإصابة بالفيروسين .

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## **List of abbreviations**

ALT	.Alanine aminotrasferase
AST	.Aspartate aminotrasferase
AuAg	Australia antigen
EIAs	. Enzyme immunoassays
ELISA	.Enzyme-linked immunosorbent assay
HAV	.Hepatitis A virus
HBc Ag	.Hepatitis B core antigen
HBe A	.Hepatitis B e antigen
HBIG	.Hepatitis B immunoglobulin
HBs Ag	.Hepatitis B surface antigen
HBV	.Hepatitis B virus
HCV	.Hepatitis C virus
.HCV Abs	.Hepatitis C virus antibodies
HD	.Hemodialysis
HD Ag	.Hepatitis D antigen
HDV	.Hepatitis D virus
HEV	.Hepatitis E virus
HGV	.Hepatitis G virus
HRP	Horse radish peroxidase
ICT	.Immunochromotographic test
NANBH	Non-A, Non-B Hepatitis
PCR	.Polymerase chain reaction
RT	.Reverse transcriptase